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AMSAT NEWS SERVICE
ANS-007

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see:
http://www.amsat.org/mailman/listinfo/ans

In this edition:

* GOLF-TEE $15,000 Matching Funds President’s Challenge
* Launch Watch - India's ISRO PSLV-C40 Mission With Fox-1D Aboard
* Your Telemetry Data is Needed to Assist With Fox-1D Commissioning
* French PicSat With V/U FM Transponder Also Aboard PSLV-C40 Launch
* AMSAT Announces the Rover Award
* AMSAT Second Annual CW Activity Day Wrap Up
* AMSAT-UK Reporting on a Chinese Launch With Five 6U Cubesats
* Volunteer Opportunity - Openings for News Service Rotating Editor
* AMSAT South Africa and SARL Hosting January 20 SDR Workshop
* New Grid Master Awarded
* NASA on the Air Events to Highlight Key Space Milestones
* Satellite Shorts From All Over

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ANS-007 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 007.01
 From AMSAT HQ KENSINGTON, MD.
DATE January 7, 2018
To All RADIO AMATEURS
BID: $ANS-007.01

GOLF-TEE $15,000 Matching Funds President’s Challenge

In October 2017 AMSAT announced the GOLF (Greater Orbit, Larger Footprint) program. The first project of the GOLF program is a technology demonstrator named GOLF-TEE (Technology Evaluation Environment). The design is a 3U CubeSat with deployable solar panels, ADAC (attitude determination and control), Software Defined Radio (SDR) Transponder, and a Vanderbilt University Low Energy Proton (LEP) experiment. Now is the time to begin work on the GOLF-TEE Project.

At the end of 2017, AMSAT has generous offers from two AMSAT Past

Presidents for matching funds up to $15,000 for those that contribute
to the GOLF-TEE campaign at:
https://www.paypal.com/cgi-bin/webscr?cmd=_s-xclick&hosted_button_id=STK27W4G9RMLC
(Shortened URL without linewrap:
http://tinyurl.com/ANS-007-PayPal-GOLF-Donation) between now and Feb-
ruary 15th. Make your donation twice as valuable by taking advantage
of this opportunity and contributing, and help AMSAT fund the launch
of the next series of satellites of the GOLF program. There are also
donate buttons for GOLF-TEE on the AMSAT website. Planning is for a
launch in 2019.

Donations of $100 and $1,000 or more will be eligible for a special
AMSAT GOLF premium. (Both premiums are currently being designed, so
please be patient awaiting delivery.)

AMSAT is a 501-(c)-(3) not-for-profit educational and scientific
organization of amateur radio operators whose purpose is to design,
construct, launch, and operate satellites in space and to provide
the support needed to encourage amateurs to utilize these resources.
Please consider a tax-deductible contribution to AMSAT to help under-
write the development and launch expenses of our GOLF satellite program.

Donors wishing to provide additional matching funds please contact
Joe Spier, K6WAO at k6wao(a)amsat.org.

(ANS thanks AMSAT-NA for the above information)

Launch Watch - India's ISRO PSLV-C40 Mission With Fox-1D Aboard

The PSLV-C40 flight from India has been rescheduled from December 30
to January 10 seems to have settled on a firmer schedule. According
to the Launch Schedule posted by SpaceflightNow.com current planning
indicates (at ANS press time):

January, 11/12, 2018 PSLV • Cartosat 2F & NovaSAR-S
Launch time: 0358 GMT on 12th (10:58 p.m. EST on 11th)
Launch site: Satish Dhawan Space Center, Sriharikota, India
https://spaceflightnow.com/launch-schedule/

India’s Polar Satellite Launch Vehicle, flying on the PSLV-C40 mission,
will launch India’s Cartosat 2ER high-resolution Earth observation
satellite and the NovaSAR-S radar remote sensing satellite for Surrey
Satellite Technology Ltd. of the United Kingdom. A collection of
approximately 30 smaller secondary payloads from Indian and inter-
national companies and institutions will also be on the launch.

AMSAT Fox-1D will be aboard this flight. Additional information
can be followed for launch updates at:
https://spaceflight101.com/events/pslv-c40-cartosat-2er/
http://tinyurl.com/ANS-007-SpaceFlight-PSLVC40
http://tinyurl.com/ANS-007-SpaceDaily-PSLV

[ANS thanks SpaceFlightNow.com for the above information]

Your Telemetry Data is Needed to Assist With Fox-1D Commissioning

AMSAT will release Keplerian elements for Fox-1D as soon as the data
becomes available via the AMSAT Web Site.

Participation in telemetry collection by as many stations in as many

parts of the world as possible is essential as AMSAT Engineering looks for successful startup and indications of the general health and function of the satellite as it begins to acclimate to space.

If you are capturing telemetry with FoxTelem please be sure that "Upload to Server" is checked in your settings, and that your "Ground Station Params" are filled in as well. You can help AMSAT and everyone waiting to get on the air with Fox-1D tremendously by capturing the telemetry.

If AMSAT Engineering is seeing nominal values from the telemetry you gather, the satellite will be commanded from Beacon Mode to Safe Mode on the first good pass over the United States. In Safe Mode, the satellite transmits a full two frames of telemetry (one Current frame followed by, and alternating each ID cycle, a High or a Low frame). Veronica now has time to make the whole ID announcement in Safe Mode.

The on-orbit checkout procedure for Fox-1D is similar to Fox-1A/AO-85 and RadFxSat. It could be completed in as little as a few days if users cooperate. It is very important, and good amateur operating practice, to refrain from using the transponder uplink so the on-orbit tests can be performed, including when the satellite is switched into Transponder Mode for testing.

AMSAT will make it broadly known when the tests are complete and the transponder is available for all to use. If you hear someone on the transponder, please do not assume that it is open for general use - check AMSAT's website, Facebook, and Twitter before transmitting to be sure you do not interfere with testing.

AMSAT asks all satellite operators to contribute just a little bit of your time by gathering telemetry, not using the transponder uplink, to help complete the last few days of getting RadFxSat operating for the amateur radio community.

Lots of hams put thousands of volunteer hours of their time into making RadFxSat happen. Just like any ham radio project you might undertake, AMSAT builds satellites. AMSAT volunteers do it because they like to, and when they are done, AMSAT freely shares their project with hams everywhere as is the spirit of amateur radio.

Thank you very much and see you on the bird!

In addition to the Fox-1 U/v FM transponder, Fox-1D contains a number of exciting experiments, including a camera built by students at Virginia Tech, the University of Iowa's HERCI (High Energy Radiation CubeSat Instrument), and AMSAT's L-Band Downshifter which will give amateur radio operators an opportunity to experiment with a different uplink band. Stay tuned for more information about the launch and early operations of the satellite.

RADIO PROGRAMMING CHART

Fox-1D Doppler Shift Correction

Memory 1 (AOS) - TX 435.340 MHz (67.0 Hz Tone), RX 145.880 MHz
Memory 2 (Rise) - TX 435.345 MHz (67.0 Hz Tone), RX 145.880 MHz
Memory 3 (TCA) - TX 435.350 MHz (67.0 Hz Tone), RX 145.880 MHz
Memory 4 (Descend) - TX 435.355 MHz (67.0 Hz Tone), RX 145.880 MHz
Memory 5 (LOS) - TX 435.360 MHz (67.0 Hz Tone), RX 145.880 MHz

The L-band experiment will use 1267.350 MHz uplink with 145.880 MHz downlink.

Frequencies are subject to change post-launch.

[ANS thanks AMSAT Vice-President Engineering, Jerry Buxton, NØJY, for the
above information]

French PicSat With V/U FM Transponder Also Aboard PSLV-C40 Launch

Cubesat PicSat is currently in India waiting for launch in January.
PicSat is a nano-satellite aimed at observing the transit of the
young exoplanet Beta Pictoris b in front of its bright and equally
young star Beta Pictoris, and at demonstrating an innovative tech-
nological concept to use optical fibres for astronomical observa-
tions from Space.

The cubesat contains an embedded FM transponder. It will be avail-
able when possible during the mission. Description of telemetry
and related information are available on
https://picsat.obspm.fr/data/telemetries?locale=en.

Frequency information:
Uplink FM 145.910 MHz
Downlink FM 435.525 MHz

Short videos on project is available on
https://www.youtube.com/channel/UCbVE3QEJO74NbJ-tHtThHpg

The project team has set up a dedicated web site with lot of
information including for hamradio:
https://picsat.obspm.fr/

[ANS thanks Christophe Mercier, AMSAT-F President for the
above information]

AMSAT Announces the Rover Award

On January 1, 2018, Bruce Paige, KK5DO, AMSAT Director Contests
and Awards announced the Rover Award. This award is granted to
stations who achieve a combined 25 points using any combination
of the defined criteria posted at:
https://www.amsat.org/amsat-rover-award/

Points can be earned for each grid square activated outside of your
home grid square using the FM, linear, and digital satellites. While
FM contacts count for 1 point each multiplier points are available
for contacts via the linear and digital satellites.

Additional points are available for photographs, publicity, social
media promotion, and AMSAT Journal articles. The options are numerous
so please refer to the Rover Award Website for all of the details.

Bruce is also asking for your help to design a certificate that helps
show what a rover is. He would like some photos of a rover station,
rover antennas, anything that would be really neat on the certificate.

Now that everyone knows what the award is and has had a bit of time to
look it over, we need your help. I would like to design a certificate
that helps show what a rover is. Therefore, I would like some photos of
a rover station, rover antennas, anything that would be really neat on
the certificate. (the photos cannot show anyone's callsign, cannot show
anyone in the picture that makes them identifiable.) Send your photos

to bruce via kk5do(a)amsat.org

Bruce will take submissions for until January 19. After this date he will post the pictures on the AMSAT website for members to choose the two, three, or four pictures and after the two weeks, we will place the pix on the AMSAT website and let the AMSAT members choose the two, three or four pictures that they think reflect the best of roving.

[ANS thanks AMSAT Director Contests and Awards, Bruce Paige, KK5DO, for the above information]

AMSAT Second Annual CW Activity Day Wrap Up

Ray, W2RS, wrote, "Many thanks to all who participated in AMSAT's second annual CW Activity Day on OSCAR, held in memory of Pat Gowen, G3IOR. We didn't ask for logs to be submitted, so we obviously have no figures, but activity seemed up significantly from last year. I worked two all-time new stations (new for me, that is) on FO-29, as well as some old friends. CU on CW in 2018, and of course in AMSAT's third annual CW Activity Day, same time next year."

[ANS thanks Ray, W2RS for the above information]

AMSAT-UK Reporting on a Chinese Launch With Five 6U Cubesats

A launch from China's Jiuquan Space Center on a CZ-11 on January 17 will fly Hunan Amateur Radio Society's constellation of five similar 6U CubeSat spacecraft intended to:

1.Carry out synchronous ionospheric transmission detection experiments based on multi-satellite and multi-band with the same GPS time base.

2.Carry out amateur HF/VHF/UHF re-transmitting experiments in any narrow-band mode.

3.Carry out communications experiments between inter-satellite amateur loads, LIFI high-speed digital downlink and CW lamp signal communication experiments.

4. Planned downlinks on 437.5 MHz using 9k6 GMSK and on 2.4 GHz and 5.8 GHz using 5Mbps OFDM.

The IARU says these frequencies have been coordinated:

Cubesat	Uplink/Downlink
TY2	435.350 MHz / 2403.000 MHz / 5833.000 MHz down / 5653.000 MHz up
TY3	435.875 MHz / 2406.000 MHz / 5836.000 MHz down / 5656.000 MHz up
TY4	435.925 MHz / 2409.000 MHz / 5839.000 MHz down / 5659.000 MHz up
TY5	436.025 MHz / 2412.000 MHz / 5842.000 MHz down / 5665.000 MHz up
TY6	436.100 MHz / 2415.000 MHz / 5845.000 MHz down / 5667.000 MHz up

Additional information can be found at:
http://www.amsatuk.me.uk/iaru/finished_detail.php?serialnum=556
https://www.chinaspaceflight.com/satellite/Changsha-Tianyi/TY-2-3-4-5.html

[ANS thanks AMSAT-UK and the IARU for the above information]

Volunteer Opportunity - Openings for News Service Rotating Editor

If you're open to volunteering to help AMSAT this is your chance!
We have openings for a few volunteers willing to help as an AMSAT
News Service editor.

Our editors work on a rotating schedule with each taking turns as
the current week's news editor. Using input received from members,
the amateur radio community, officers, plus our other editors your
job is to assemble the AMSAT News Service bulletin for your week.
(Template is provided to help you format the message.)

If you can help contact our Senior News Service Editor, Lee McLamb,
KT4TZ via his e-mail: kt4tz(a)amsat.org

[ANS thanks the AMSAT News Service for the above information]

AMSAT South Africa and SARL Hosting January 20 SDR Workshop

SARL and AMSAT SA will be holding another SDR workshop at the National
Amateur Radio Centre from 09:00 - 13:00 CAT on Saturday 20 January
2018. The objective of the workshop is to review the application of
SDR dongles and the various software packages made available at pre-
vious workshops. Anton Janovsky ZR6AIC will be on hand to assist with
any technical difficulties.

There will be a discussion of the HF Noise monitoring system and the
setting up of a server to store the data. AMSAT SA will present a brief
update on Kletskous.

The cost of the workshop is R50 for SARL and AMSAT SA members and R100
for non-members. Light refreshments will be served. For details and
registration visit www.amsatsa.org.za

[ANS thanks SARL weekly news in English 2018-1-6 for the above information]

New Grid Master Awarded

Rick, WA4NVM and Damon, WA4HFN have teamed up to promote the
use of amateur satellites and support AMSAT North America with
a series of awards for satellite operators.

On January 1 Damon announced, "Congrats to Fernando, NP4JV for
earning Grid Master Award #7". The Grid Master Award is given for
confirmed satellite contacts with all 488 U.S. Grids.

Previous Grid Master award winners include:
#1 John K8YSE 5/16/2014
#2 Doug KD8CAO 12/15/2014
#3 Rick WA4NVM 4/26/2015
#4 Glenn AA5PK 8/22/2017
#5 Clayton W5PFG 9/14/2017
#6 Al XE2AT 11/03/2017

In addition to the Grid Master award Rick and Damon also sponsor
these satellite operating awards:

+ Got Grids Award - for 1 satellite contact in each of the

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   10 maiden head grids blocks in the US

+ 5 in EM55 Award - for 5 satellite contacts with operators
   in EM55

+ These awards are available at no cost but Rick and Damon request
   you make a donation to AMSAT-NA.

For more information visit their web site:
http://www.squirtthebirds.com

[ANS thanks Damon, WA4HFN for the above information]

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NASA on the Air Events to Highlight Key Space Milestones

by Bob Granath - Dec. 1, 2017
NASA's Kennedy Space Center, Florida
http://tinyurl.com/ANS-344-NASAEvent

NASA is known for communicating with astronauts on missions to space, but regular citizens can radio NASA centers across the country. From the end of this year through the next, NASA will mark several key milestones. Amateur radio clubs at agency centers across the nation plan to celebrate these occasions with several "NASA on the Air" events.

"We enjoy sharing NASA's story as part of the fun of making contact with fellow ham radio operators across the nation and around the world," said Kevin Zari, who is activities officer for the Amateur Radio Club at NASA's Kennedy Space Center in Florida. "We occasionally communicate with people who think that because we're not flying the space shuttle anymore, NASA has almost gone out of business. We tell them about activities such as the International Space Station and the Space Launch System, and they appreciate the update."

Amateur, or ham, radio operators use a frequency spectrum for communicating noncommercial and private messages. One of the most important uses of ham radio operations is providing emergency messaging following disasters, such as the recent Hurricane Maria that destroyed most avenues of communication in Puerto Rico.

"The amateur radio clubs at NASA centers are made up of civil servants, contractors and tenants who participate on their own time," said Zari, who has been at Kennedy since 1990 and is chief technology officer in the Mission and Support Office of Exploration Research and Technology Programs. "We all have a common goal to show our support for NASA and highlight some of the agency's amazing accomplishments."

Zari added that he hopes, if time permits, International Space Station astronauts can participate using ham radio equipment aboard the orbiting laboratory 225 miles above the Earth, made possible by the Amateur Radio on International Space Station (ARISS) Program. Amateur radio has even been part of NASA space flights since Shuttle Amateur Radio operations started in 1983.

The plan is to talk about these anniversaries and their place in the history of NASA, explains Rob Suggs, who is the secretary of the amateur radio club at the Marshall Space Flight Center in Huntsville, Alabama.

"We also want people to know what we are doing now and what's coming up in the near future," he said. "This includes the Commercial Crew Program, as well as plans to send astronauts beyond low-Earth orbit with the Space Launch System and Orion."

"We plan to publicize the "NASA on the Air" events in amateur radio magazines, on our Facebook site and web page," said Suggs who has worked for NASA since 1994 and is the Space Environments Team lead at Marshall.

Zari added that they plan to use the hashtag #NOTA when announcing events on Twitter (@NASAradioClubs).

While NASA amateur radio stations are commemorating historic milestones, Zari explains they also are making it into a contest.

"Ham radio enthusiasts usually exchange QSL cards," he said. "When you make contact with someone, you exchange a postcard noting the contact was made. For this yearlong event, some clubs at NASA centers are offering commemorative QSL cards and a special certificate indicating how many centers a participant contacted on various frequency bands."

QSL cards serve as written confirmation of communication between amateur radio stations. QSL derived its name from the Q, or question, code message: "QSL?" It simply means, "Do you confirm receipt of my transmission?"

According to Suggs, points will be awarded to each center's amateur radio club based on the number of contacts made during the yearlong event. Participants can enhance their award by using one of the existing capabilities of amateur radio on the space station such as packet (digital operations) or listening in to an astronaut giving answers to school children during one of the scheduled school contacts. No special activity is planned from the station and only one activity from the space station is needed to qualify.

"We plan to have a web-based system for participants to check their points total and download a printable certificate at the end of the event," he said. "Points will be awarded for each center's contacts."

Learn more about the "NASA on the Air" events at:
http://nasaontheair.wordpress.com

'NASA on the Air' Events - Milestones coming up between Dec. 11, 2017 and Dec. 27, 2018, will include:

+ 45th anniversary of Apollo 17, Dec. 12-19, 1972
+ 60th anniversary of the establishment of NASA, Oct. 1, 1958
+ 20th anniversary of the launch of the first U.S. element of the International Space Station during STS-88, commanded by Kennedy's Director Bob Cabana, Dec. 4-16, 1998
+ 50th anniversary of Apollo 8, the flight of Frank Borman, Jim Lovell and Bill Anders to orbit the Moon, Dec. 21-27, 1968

[ANS thanks NASA for the above information]

Satellite Shorts From All Over

+ AMSAT's Michelle Thompson, W5NYV was interviewed on the January 1 podcast of Ham Radio Workbench to discuss the AMSAT Phase 4B pro-

gram and her role in leading the Ground Station team. Listen to the podcast at: http://hamradio360.com/index.php/podcast-player/ (Michelle's interview starts at approximately 1:00:00 point - you can enjoy the entire 2 hour podcast or fast forward to the interview).

+ Felix, EA4GQS says the January 2018 AMSAR-EA newsletter is available for download from: https://t.co/uJ3O4mNWsB

+ Alex, OZ9AEC, reports that Gpredict 2.2 has been released. https://community.libre.space/t/gpredict-2-2-released/1577 to read about the latest improvements and find links to source code and instruction manuals.

+ The Jet Propulsion Lab has published an educational project which may be of interest to hams also pursuing amateur astronomy. Have you ever wondered when the next full moon will be? How about the first quarter moon? Now you can have all the dates and times for all the moon phases for the year at your fingertips by building your own Moon Phases Calendar and Calculator: http://tinyurl.com/ANS-007-NASA-MoonPhases

+ A 9-ton Chinese space lab will fall out of the sky soon — and if you predict exactly when, you can win some swag. The Aerospace Corp.'s Center for Orbital and Reentry Debris Studies (CORDS) is sponsoring a guessing game about the death day of China's uncrewed Tiangong-1 spacecraft, which is currently forecast to plunge uncontrolled into Earth's atmosphere in mid-March, plus or minus two weeks. If you pick the correct day — or if you're closer than anyone else — you'll win some Aerospace Corp. booty. To play, go to the CORDS site in the article posted at: http://tinyurl.com/ANS-007-ChickenLittleContest

+ The UK's Goonhilly radio telescope will be featured on a Great British Railway Journeys program on BBC2. Brian, G4NNS operating his station to "talk to the moon" and hear his echos coming back will be shown on Friday, January 12, 2018 at 1830 UTC. The programming schedule is posted at: http://www.bbc.co.uk/programmes/b00xgqxy/broadcasts/upcoming

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73 and Happy New Year,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM
k9jkm at amsat dot org